MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

Bacteriology

Prevention of Peritoneal Adhesions.—Many operative techniques and therapeutic methods have been advocated to prevent the formation of peritoneal adhesions. One of the latest tests of proposed methods is by Ochsner and Mason [1] of the department of surgery, Tulane University, New Orleans. These investigators report very favorable results from the use of papain and other vegetable digestants.

Ochsner and Mason found that extensive peritoneal adhesions are readily produced in experimental animals by combined mechanical and chemical irritation of intestinal surfaces, and that an intraperitoneal injection of papain will almost invariably prevent the formation of such adhesions. They also found that if control or untreated animals are relaparotomized after the formation of extensive adhesions and the adhesions are then broken up, the application of papain prevents their re-formation in the majority of cases. In the few animals in which adhesions re-form, the new adhesions are fine, veil-like and easily broken.

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REFERENCE

1. Ochsner, A., and Mason, F.: Proc. Soc. Exper. Biol. and Med., 1928, 25, 524.

Tuberculosis

Tuberculous Infection.—The development of tuberculosis depends upon several factors which vary with each individual who develops active symptoms. There must of necessity have occurred infection in each person. This may vary because of degree of virulence of infecting organisms, or because of the amount of infectious material. Unless the virulence and amount of infection is such as to overwhelm the resistance of the individual, symptoms are not produced as the immediate result of infection. Following this stage or condition of primary infection, the stresses to which the individual is subjected are determining factors as to whether or not active tuberculosis will develop to a degree which will produce symptoms, or tissue changes through which the diseased condition may be recognized. The stresses may be bacterial, either excessive infection of tubercle bacilli repeatedly received at more or less frequent intervals, or infection by other organisms, as, for instance, pyogenic bacteria, which lower resistance. This infection may involve the areas of healed tuberculous infection or may lower the patient's general resistance. The stresses of environment may be determining factors. Pathologic changes, as degenerative processes of tuberculous foci, accompanied by dissemination of bacilli into other tissues, may occur. Dr. Allen Krause, in the last paragraph of "The Pathogenesis of Disease," which appeared in the August number of the *American Journal of Tuberculosis*, brings out briefly the influence of several factors.

"We suspect that if we could get at the truth we should find that what is most effective in bacillary contact, quantitatively considered, are opportunities for repetition of infection, and particularly the intervals of time between repeated infections. Experimental work, which would take too long to relate, suggests this strongly, and in summary leads to an opinion something as follows: A prolonged and more or less continuous exposure to tuberculosis, with its chances for frequently repeated intakes of bacilli, and especially as intervals between successive infections become shortened, is decidedly more momentous as to pathogenesis than single casual or occasional contacts, no matter what the dosage.

"*Comment.*—As we follow the many varied threads of this complicated and tangled skein that leads to the pathogenesis of tuberculosis, we should ever keep in mind that between the time of reception of offending bacilli and that of pathogenesis the natural history of tuberculous infection rarely shows an uninterrupted course. Even infected infants who fall ill, and only the lesser number do, will be found to go weeks and months with inactive infection before breakdown. The child will go months and years; the adult may go years and decades. If we had no other facts to guide us, this circumstance alone should teach us that, in the majority of cases, neither native character of tissue nor kind nor "dosage" of bacillus is decisive in establishing the pathogenesis of tuberculosis, contributory though each may be to the end-result. The net result of this inquiry is to suggest that, in most cases, out of the first meeting of virulent germ and susceptible host, there results a tissue graft which, placed in the tissues of the animal, man, living a normal existence, because of a prompt acquisition of allergy and immunity would go the way of limited development and at last obsolescence. But civilized man has drifted far from the life of man the animal, and in the journey has been and is subjecting his engrafted tubercle to varied forces that promote its growth and spread. Back of every awakening of tubercle, back of every nurturing of its evolution, is an experience or succession of experiences that have promoted its continued existence and progression. Common observation teaches us that from the physiologic standpoint, such an experience is characteristically of a stressful nature. Whatever may be stressful is to be viewed in its

relations to the individual. The ultimate solution of the problem of pathogenesis of tuberculosis in human beings must be sought wherever the sick human being is found, for it is what he has done and what has happened to him since infection that have been most momentous. Environment, individual experience, have swung toward or away from pathogenesis the balance fixed by initial meeting of germ and host, and soon affected by allergy and immunity."

The recognition of the foregoing principles and their application in the efforts to control tuberculosis have been important factors in the reducing of morbidity and mortality.

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Medicine

Blood Pressure Curves.—Fahrenkamp has published (Die Psycho-Physischen Wechselwirkungen Bei den Hypertonieerkrankungen, Springer & Co., Berlin), a detailed study of blood pressure curves made on a series of eight hundred patients, and followed for long periods of time.

The pressure readings were recorded morning and evening for weeks and months; his deductions are made from the curves drawn after this method of procedure.

The normal individual has a lower pressure in the morning than in the evening. Patients with increased pressures present many variations in the curves made by Fahrenkamp; he attempts to classify these curves and to make deductions from them.

Three types of blood-vessel disease are considered:

1. Essential hypertension, *i. e.,* that group of individuals who have a persistently elevated blood pressure without clinical or laboratory evidence of blood vessel or kidney disturbance.
2. Hypertension with arteriosclerosis.
3. Hypertension with kidney involvement.

Fahrenkamp finds that blood pressure curves from patients with essential hypertension do not remain elevated persistently, but that the periods of elevation are followed by periods in which the pressure is much decreased. Vascular crises occur which account for the periods of elevation. It is during such periods that danger of a ruptured vessel might be anticipated. In instances of hypertension, however, blood vessels are not diseased; it has been found experimentally that a pressure of 1300 millimeters is required to rupture a healthy small artery, hence these patients stand the increased pressures which may occur at the time of vascular crises.

In instances of hypertension with arteriosclerosis, study of the pressure curves demonstrates likewise that the persistent elevation of pressures is not nearly so frequent as has been thought; there are periods in which lower pressures occur, and these lower pressures may persist for long periods of time.

In the third group—hypertension with kidney involvement—only two subheads will be mentioned here: glomerulonephritis; malignant hypertension.

In acute glomerulonephritis the first clinical evidence has been found to be an increase in blood pressure, with little or no variation between morning and evening readings. This elevation persists so long as the inflammatory condition is active in the kidney, and begins to drop only when the kidney condition improves. In the event that the acute glomerulonephritis does not heal completely, but persists as a chronic glomerulonephritis, the blood pressure curves give evidence of this fact. During an exacerbation of such a chronic glomerulonephritis the morning and evening pressures are again elevated, and following the recrudescence the pressures do not drop to normal, since chronic damage remains in the kidney.

In the malignant type of hypertension the morning and evening pressures are found to remain continuously high, in some instances with little or no daily variation. In such instances, where a variation between morning and evening pressures does not appear, or where the pressures do not fall gradually within a period of six weeks, a poor prognosis is frequently given, and found to be justified.

The advisability of taking such frequent readings on patients with increased blood pressure in private practice is questionable. "The psychic trauma of blood pressure determinations" is a matter of real importance. In routine treatment of hypertension patients, one is certainly not justified in making such frequent readings. In hospitalized patients, where frequently the increased pressure is an incidental finding, and has not been responsible for the hospitalization, an explanation to the patient which would alleviate worry over the repeated readings might afford opportunity for study of such blood pressure curves. In this manner corroboration of Fahrenkamp's findings, or the deduction of further facts, might result.

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Pediatrics

Exanthem Subitum.—Recognized by Zahorsky in 1910 as a disease entity and given its present name by Veeder and Hempelmann in 1921, this disease is still surprisingly unfamiliar to the profession at large and commonly goes undiagnosed. It is by no means a rare disease. Recently a series of twenty-five cases, all from San Francisco, has been reported as having been seen within a period of four years. It is of great practical importance to the practicing physician and to his reputation that he should be able to recognize it or at least suspect its presence. Occurring in most cases between the ages of six months and two years, it is characterized by a high, continuous temperature lasting approximately four days, the absence of pathological signs, no acute enlargement of lymph nodes, a critical fall in temperature followed within twelve hours as a rule by the appearance of a morbilliform rash mainly on the trunk, neck and proximal portions of the extremities, and complete recovery